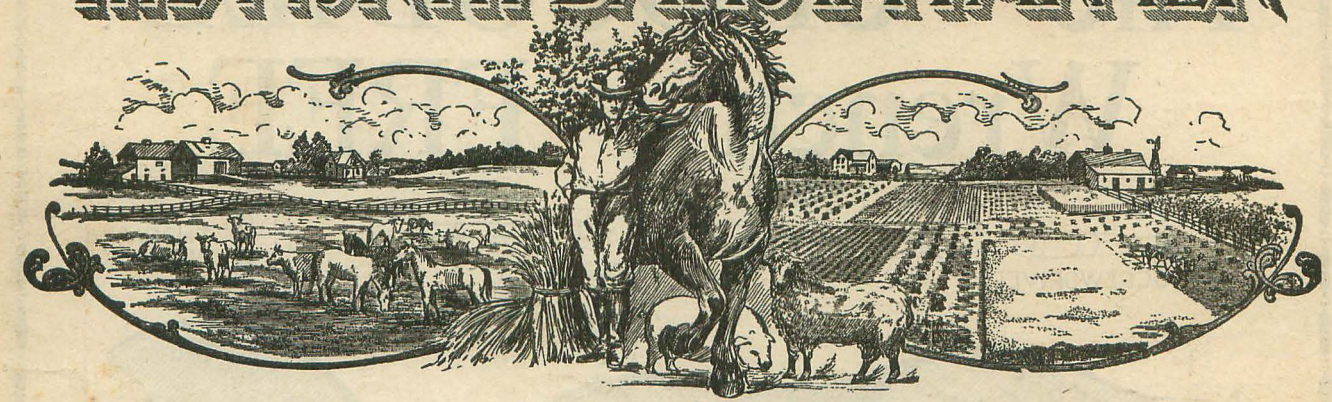
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THE NORTH DAKOTA FARMER



"THE NORTH DAKOTA FARMER FOR NORTH DAKOTA FARMERS"

Vol. 15 No. 3 Lisbon, North Dakota, September 15, 1913 50 Cents A Year

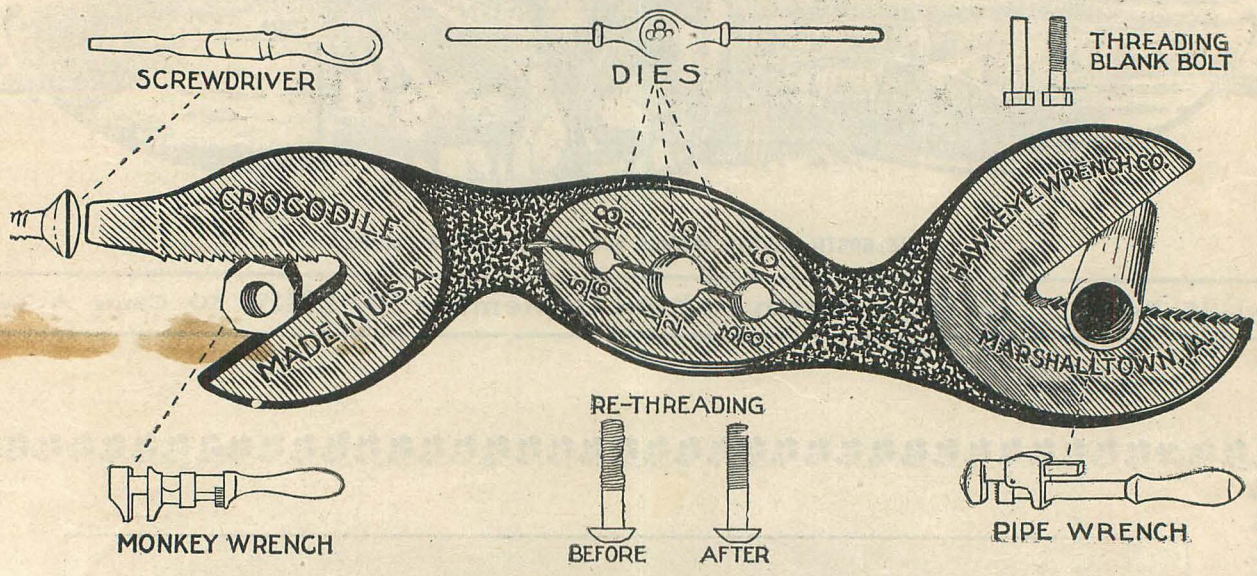


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THE NORTH DAKOTA FARMER

Vol. 15, No. 3 | LISBON N. D., SEPTEMBER 15, 1913 | 50 Cents a Year

THE SILO

By President J. H. Worst, N. D. A. C.

It has been demonstrated over and over again that the silo is one of the most useful and profitable adjuncts to the farm. This is more particularly true where livestock is given reasonable attention—especially dairying. In France and some other European countries, the green clover or alfalfa is cut daily during the growing season, and fed to cows that are kept confined at all times within stables or small enclosures. This is considered more economical than allowing them to run in pasture lots as it precludes the possibility of losing any feed on account of the grass being trodden under foot by the cattle. Where the labor cost is rather insignificant, as it is in most countries of Europe, it does not matter greatly how much labor is applied to a given proposition. Not so here, however, where labor is high priced and none too reliable. Yet the principle of feeding ensilage compares favorably with feeding green clover and alfalfa, cut daily and conveyed to the cows, only it is much more economical.

One principle objection to dairying (aside from milking) is the uncertainty of the summer pastures. That is to say, so much depends upon the wetness or dryness of the season, a condition which cannot be foretold, that the farmer cannot determine with any degree of exactness how many acres to leave for pasture.

If the season should prove hot and deficient in rainfall, the pastures may dry up before the middle of August, leaving his milk animals to shift on dry feed, if he even is so fortunate as to have this substitute.

Dairying, like anything else, cannot be popularized, however exceptionally profitable it may be under favorable circumstances, unless the element of certainty can be fairly demonstrated, under **average** conditions. This, however, can be done by making use of the silo, with as much assurance as can be applied to any farm operation that depends upon seasonal conditions. And most, if not all, farm operations do depend upon seasonal conditions.

Corn sufficiently advanced toward the ripening stage for ensilage is as certain as any crop that grows on the farm. It is not so sure for the crib but it is almost a certainty for the



I say! father, is it gambling to raise all wheat?

silo. Moreover, corn stubble is quite reliable for the growth of small grains the following season. In fact, corn stubble is so sure to produce a profitable stand of wheat or other cereal that many good farmers contend it pays to grow a crop of corn solely for its beneficial influence upon the soil; that the frequent cultivation of the ground conserves moisture, destroys the weeds, facilitates the multiplication of friendly bacteria, etc., to such an extent that it pays to grow corn, independent of the crop itself. This fact alone should have considerable weight. But in addition to this, the silo will enable the farmer to convert the corn into a sort of sauer kraut which cattle and livestock generally not only relish, but thrive on. With abundance of silage, the farmer need not depend so much on open pasture; nor is it indeed advisable to set aside much land for pasture purposes. The silos should be large enough, or they should be sufficient in number to practically feed the milch cows the year round,—certainly during nine months of the year.

Of course, it will require more corn land to make so much silage, but the more land that is devoted to corn the more land is put into prime condition for other crops, the following season. As one acre of corn stubble land will usually produce as much wheat as two acres that grew wheat the previous year, the advantage of making ensilage in great abundance becomes quite apparent.

The silo is the best possible substitute for a meadow. In many respects it is an improvement over the meadow, for the reason that there is no waste of feed from being trampled upon, as in case of grass, and the cows do not have to be exposed so much to the hot sun, flies, mosquitoes and inclement weather. The milk flow will remain unaffected during the entire period of lactation, for the reason that the feed and physical comfort of the cows will be practically uniform during the entire year.

Of course, in order to succeed in the business of dairying, the cows must be milked, which means that somebody will have to do the milking. This is really the most serious drawback that interferes with the business of dairying. Who will do the milking?

Well, there are worse things that have to be done than milking cows. Conditions are likely to develop that will make milking seem like a joyful undertaking. No one questions but that it is honorable and when it is once demonstrated that cows, and milch cows at that, stand between the family and want, milking cows will become exceedingly popular. The fellows that scoff at the vulgarity of being a milker of cows may yet follow some trade even more humiliating in order to shorten his time.

Coming back to the silo, it is rapidly coming into the state with every indication of remaining permanently. It is the beacon that heralds the elimination, very largely, of the element of chance on the North Dakota farm. It also is the beacon that heralds the end of soil exploitation, for it not only spells rest for the land but fertility for renewing its vigor.

Grain growing exclusively is a precarious business, especially after the land has been cropped continuously for a quarter of a century. Few countries would have stood it half as long as ours. It is time now that we turn our attention more largely to livestock and silos and the sort of crops that are incident, thereto.

The Scientific Stooling and Multiplication of Wheat

Charles Cristadora, Pt. Loma, Calif.

Five years ago, more or less, the "Nova Vremya" of St. Petersburg published a statement to the effect that one Gen. Levitzkie, given to agricultural experimentation, grew from a single grain of wheat, 19,683 stools or stalks of bearing grain. The Nova Vremya is a sedate government organ and not a comic paper given to promiscuous joking.

He had a conical pit dug, 24 inches by 18 inches, and, at the bottom, planted a single kernel of wheat. As it sprouted he lightly dusted earth upon it, keeping it constantly earthed over, and so continued to do until the upper surface of the earth was reached when the growth was allowed to have its own bent. From this one grain of wheat 19,683 stools came up, all maturing. So said Nova Vremya. Allowing 40 kernels to a head the yield was a bushel from a single grain, flowing over and good measure—800,000 to 1.

Let us for argument and illustration imagine these pits sunk in an acre of ground, four feet apart, 2500 to an acre, or the wheat planted in sloping trenches, this would mean 2500 bushels of wheat per acre from a seeding of say one-third of a bushel.

Again, let us, instead of using pits, run V-shaped furrows, 24 inches wide and 18 inches deep, and, with an especially constructed seeder, drill in even four feet a kernel of wheat, and as the sprouts came up, a rotary and adjustable brush machine to lightly dust in earth daily upon the growths, a la Gen. Levitzkie, until the field of grain was flush with the surface, the ground, of course, under intensive dry-farming methods to be kept cultivated, mulched and, weed-free. Such intensive cultivation would prove expensive compared with drilling the grain into plowed and harrowed land and then allowing it to shift for itself, but the extra labor would be off-set by the extra yield, many hundred times over, and also considering that our national acerage of wheat yield per acre does not exceed 15 bushels. All a vaporious cereal dream!

Wheat stools, and under some conditions and within certain environments, one time more than another. The following illustrations speak for themselves.

Within limitations, the more sparsely a field is sowed the better the stooling. The area of plant-food in the earth given over to the fewer grains drilled in may have an influence when concentrating upon the fewer roots. But stooling, the great productive feature in wheat-growing, varies and the question is one of finding out why, and applying that knowledge. More brains must be mixed with the soil, we hear that echoed thruout the land. The earth, under intensive dry-farming methods, can be made to yield along all lines far more shan it does, an incontrovertible fact.

With the influx of peasants from Europe thru the Panama Canal the development of the great plains is to take place. Already 30,000,000 acres of these semi-arid lands, above the influence of the irrigating ditch, which under a 12-inch to 18-inch rainfall and stored bi-ennially in the earth thru deep plowing, mulching and summer fallowing, are producing 40 to 60 bushels of Turkey Red Winter Wheat and 20 to 30 bushels of durum spring wheat, the best of bread wheats and selling at a preimum today. Already 30 millions of these semi-arid acres are growing diversified crops abundantly and harboring that croesus of the farm, if I can use the expression, the

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golden butter dairy cow.

The $5000 prize at Minneapolis last fall for the best bushel of wheat exhibited was won by a dry-farmer who got a yield of 52 bushels per acre from his farm.

Intensive dry-farming is to be more and more practiced, and with rich soil, under a rainfall of 12 inches to 18 inches and bi-ennial cropping, no record of a dry-farmer's failure has yet been made, except for one and only one reason, lack of funds to carry the farmer over during the trying initiatory, first, second and third year perhaps. This Rubicon of the dry-land farmer passed successfully, there are no products from either sub-humid lands or irrigated lands that can equal those in quality from these intensively cultivated dry farmed acres, be they fruit, vegetables or grain, prosperity is his. There is no farming so safe and certain as intensive dry-land farming. The Iowa, Illinois and Wisconsin farmers, flocking into Colorado, Wyoming, Montana and Idaho, prove this, for they are all making good, abundantly so on semi-arid lands.

So with one emigrant, who knows of grain-growing and stock-raising, but naught of fruit-growing upon high-priced (comparatively) irrigated lands. Cheap land must rule, and never was a thing more opportune than the coming rural credits, cheap money, for the semi-arid land farmer, really the crux of the agricultural situation today, especially as to the to-be-developed southwest.

Take the dairy and stock situation. On the agricultural horizon looms up the Burbank Spineless Cactus, green the year around; an ideal stock food (presumably mixed with other grass or grain as a fodder perhaps fed as a straight fodder); meat, and drink as well, for stock and credited with a yield of 100 to over 200 tons per acre and grown everywhere on land where the frost does not sink in over one inch deep. If all this rings true the great plains before long are to rival, far exceed, the old days of the Texas cattle industry. No man today can paint a picture along futurity lines if this beneficent cactus growth rings true in practice, and nothing so far evolved by Luther Burbank has proved a disappointment.

But the farmer, setting out 5 to 10 acres of spineless cactus slabs, must wait three long, weary years before he can turn the cattle in to forage. But once the growth has been secured, the harvest of acre after acre, stems eaten clean from slabs, the scalks will go on producing indefinitely year after year. But whilst this superlative fodder is being grown time rolls on and during the preparation of his dry-land intensively cultivated farm the farmer must live, and hence the beneficient rural credit system now under discussion—stock; Burbank's spineless cactus; rich land; 12 inches to 18 inches of rainfall; bi-ennial cropping and rotation of crops; all coupled with intensive cultivation, makes a combination for a credit basis as safe as a government bond. But capital, credit, ready money to live upon whilst he tills the soil and waits, is the very heart of life to the dry-farmer.

So let us hope that the beneficient cheap money methods of Europe, about which our commission has just learned, can be successfully applied in the United States and especially to the farmer who tills the lands of the great southwest, for Ex-Secretary Wilson predicted that "the great plains of the southwest were to feed the east," and his prediction is to ring true to the content of 100% plus.

FROM OVER THE STATE

PIGS AND PROFIT

It is noted with gratification by many, says the Harvey Herald, that the pig is beginning to be considered as a profitable source of revenue in this section, and several farmers are gradually entering upon a campaign of hog raising, being led to do so doubtless because they realize that the line may be made a good paying proposition in the problem of diversifying and stock raising.

One who found pigs profitable is A. D. Frost, who some time ago bought a number of pigs for $1.25 each and after feeding them, turned them off at a price of $18.00 each. He expects to have in the neighborhood of 100 to turn off next year. Mr. Ole Aas is another who is entering the proposition, he expecting to purchase enough pigs to clean up twenty acres of barley that is not good enough to pay well to cut, but he will clear enough on it via the pig route to repay him for a reasonable crop. It is learned that a carload of pigs were shipped from Manfred last week many of the Manfred farmers being interested in the pig as a money producer, others are becoming interested sufficiently to contemplate going into it as a supplement to their farming operations and it has been proven that it will abundantly repay those who handle the question properly. Let there be more pigs raised.

BUYS HOLSTEINS

John Morrow, who resides on the old Tibbetts farm, arrived from Illinois at Okes, N. D. with ten head of full-blood Holstein cows and two calves, a heifer and a bull.

These cattle were purchased of I. J. Case, president of the Illinois Holstein-Freisan association, and are noble specimens of their race. Three of the cows cost $350 each.

Mr. Morrow has on his farm a fine Holstein registered bull and a cow. With the addition of this herd and the rebuilding of his silo he is in a fair way to make money out of his farm.

SHEEP FOR THE STUBBLE

Otto O. Ulhorn, Ransom County representative of the Better Farming association, made a trip to Montana to purchase several thousand head of sheep to be fed on the stubble fields in that county and fattened for the eastern markets. A number of farmers are co-operating.

AS THE MACHINE YIELDS

Sufficient reports have been received from threshing operations thruout the state to bear out earlier prospects of a good, paying yield this year. With the exception of a slight delay in a small area caused by rain threshers have not been interrupted, and the work is proceeding remarkably fast. In the eastern part of the Red River Valley practically all the threshing is completed, while in the southern and central district practically the same condition prevails.

Threshing operations will be thru earlier than usual, and, with anything like an even break in the matter of weather, more fall plowing will be done this year than last year, or for several seasons past.

The threshing yields are interesting, indicating, in many instances, the results of proper farming methods as against poorer methods.

Ed Pehl, on a quarter section of wheat sown on corn ground, secured an average of 26 bushels an acre. Another field adjoining yielded only ten bushels.

Forty-three bushels of wheat was the average on a tract sown by Fred Kain of Neche, being of the Marquis variety. After cutting the wheat Kain sowed the ground to alfalfa, and now has a good crop of fodder.

In the New Rockford district the average yield is from 12 to 15 bushels, with the grade being No. 1 northern in most instances.

Carl Meldahl of Carrington reports a yield of 31 bushels an acre on a 10-acre tract, being on corn and potato ground.

Near Shafer J. B. McLucal has an oat field that averaged 42 bushels an acre, being one of the best yields in western North Dakota.

R. Ufer of Page reports 16 bushels of wheat an acre, grading No. 1 northern.

In the Willow City district an average of about 20 bushels of wheat an acre is reported.

Glen Ullen and Hebron have an average of 12 bushels; the Crown Butte district is getting about 14 bushels, while the New Leipzig and Brisbane districts are getting an average crop.

Around Munich, Cavalier county, yields are running from 12 to 20 bushels; northern Williams and southern Divide county will have about 15 to 18 bushels on the average; Nelson county is getting from 15 to 20 bushels; barley fields near McVille run as high as 65 bushels; J. W. Morrison of Minto got an average of 37 bushels of Marquis wheat; wheat on the C. Peterson farm near Plaza averaged 12 bushels and oats weighed 40 bushels; A. Edwards got 10 1-2 bushels of wheat in the same district, and J. Dahl got but seven bushels; F. Rustin of Milton threshed clover seed getting 3 1-2 bushels an acre; E. S. Person has a corn field that will average about 50 bushels an acre and which will mature; wheat in the Minto district is averaging about ten bushels.

THE SILO A PASTURE SUBSTITUTE

G. L. Martin, Prof. of Dairying, N. D. Agri. Col.

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REMOVES

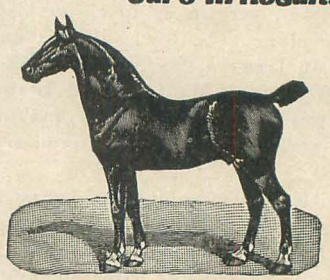
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I have used GOMBAULT'S CAUSTIC BALSAM for ten years; have been very successful in curing curb, ringbone, capped hock and knee, bad ankles, rheumatism, and almost every cause of lameness in horses. Have a stable of forty head, mostly track and speedway horses, and certainly can recommend it.—C. C. CRAMER, Training Stables, 990 Jennings Street, New York City.

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meet this problem is to use the silo. The best way to meet this problem is to use the silo. It is virtually a concentrated meadow and has replaced the cow pasture to advantage on many a farm.

Where the pasture is replaced with silage crops like oats, peas, clover, cane, or corn, a great deal more feed can be raised per acre in the same length of time, which makes it possible to keep more cows on the same area.

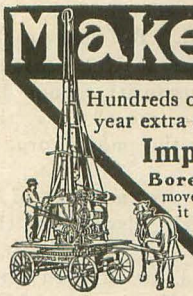
A ten-acre pasture may support ten cows for about four months in the summer if the season is favorable, altho it requires several acres of native pasture to support a cow. The other eight months the herd has to be provided with feed grown on the rest of the farm. In that case another ten acres of land is required to grow the winter feed for the herd. This plan may require two acres or more to supply one cow.

In the northwest, corn will average five tons of silage per acre, or enough to feed a cow 30 pounds per day for the entire year. On many farms five tons of silage are raised on half an acre which would allow enough grain and clover to be grown on the other half to supply the cow with a full ration. The use of the silo under present farming conditions in the northwest makes it possible to keep a cow on every two acres at least, or 80 head on a quarter section.

Where It Is Practicecd

The plan suggested is actually in practice in many palces close at hand. In fact, the writer visited a farm in the Red River Valley recently where the pasture is replaced by the silo and the owner stated that he never was able to make his cows maintain their milk flow in the summer time until he began to feed silage in place of pasturing the cows. He gives the cows the freedom of a large yard in which to get exerdise and fresh air, then feeds them in the stable away from the heat and the flies. The summer rations for the individual cows of course vary to suit the capacity of the animal, but the average amount of roughage fed is from 30 lbs. to 40 lbs. of silage and about 15 lbs. of alfalfa per day with the addition of about

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Abraham Duerksen,
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10 lbs. of grain in the proportion of one part oil meal, two parts cornmeal and four parts middlings or ground oats.

The returns from the herd are good. He is milking 26 cows which have been in milk on an average of 7 months each. They average 28 lbs. or about 13 qts. of milk per day and at 5 cents per quart returns 65 cents per cow, or $16.90 per day for the herd; or selling the cream at 30 cents would bring about half as much. While the conditions in the northwest at present do not require the farmer to keep a cow to the acre yet the facts from actual practice show that it is possible to do so with the silo as a substitute for the pasture.

INSURE NEXT YEAR'S CORN CROP

This is the time to insure next year's corn crop. The corn is now maturing, if the seed did not come from too far South. By selecting the seed corn in the field attention can be given to the time of maturity, kind of stalk grown on and how placed on stalk.

Another question that comes up is how ripe the corn must be to grow. Corn in the roasting stage will grow. It must be handled with a good deal of care as the corn contains a great deal of moisture at this time and fermentation and mold start quickly. It should not be dried with too much heat either. Room temperature is good provided there is circulation of air to carry away the moisture.

One of the best ways for carrying the corn, when selecting it in the field, is in a sack with a rope or strap to hang it over the shoulder. Attach the strap to a corner of the top and a corner of the bottom of the sack.

In case one does not have a field of corn mature enough for seed, it may be worth while to buy a few bushels from a neighbor but with the privilege of selecting it in the field.

Corn has the most food value for fodder or ensilage when it is nearly mature, so no matter for what purpose grown the corn that matures is the most valuable.

Now is the time to select the seed corn. In going thru the field now one can see the stage of maturity, the kind of stalk the ear is grown on, as well as its distance from the ground.

If the corn is to be cut for the silo or harvested with a corn binder it is necessary that the ears are well up from the ground. If the corn is to be bagged down it does not matter if the ears are near the ground.

The tendency of the early maturing corn is to produce ears near the ground. Another tendency is for the ears to get smaller. By the proper selection these two things can be overcome. Too early maturity is not desirable either. The more days the corn has to grow the more corn it can produce.

Select ears that are mature, of a good size, and well placed on the stalk.

The corn should be husked and hung up where the air circulates freely so that it will dry out. This is important. If the corn is not dried fairly rapidly it will mould, and if it freezes before being dried the germ is weakened and often killed.

QUERIES AND ANSWERS

If a cow is tuberculous is it safe to use her milk?

It is unsafe and unwise to use milk from any diseased animal. Milk from tuberculous cows is dangerous, especially to children.—G. L. Martin.

Which is the best, disc or moldboard plow?

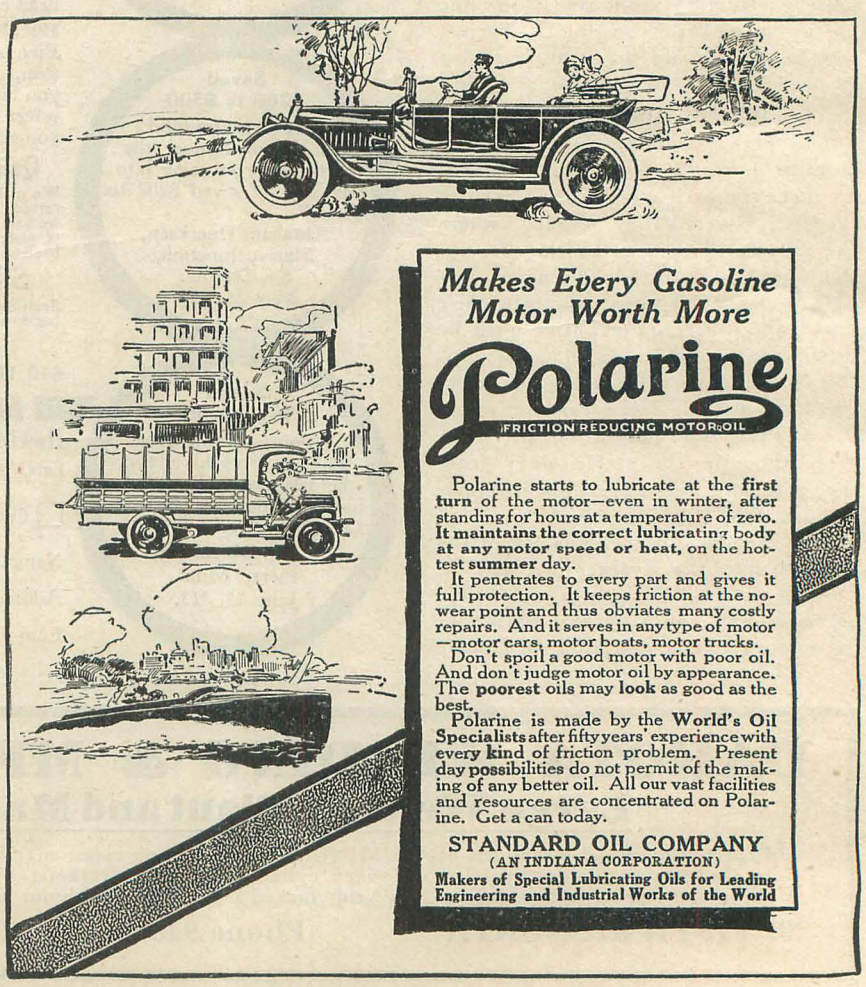
The answer to this question will depend upon the locality. In general it may be stated that wherever the soil is such that the stubble plow works well the disc plow cannot improve its work. The disc plow, however, has its field of usefulness and experiments conducted at the North Dakota Station show that while the yield of grain is greatly reduced by continual plowing with a disc plow it is materially increased by an occasional plowing with a disc. This was no doubt due to the fact that the discs loosened up the soil to a greater depth thus increasing the root room.—R. M. Dolve.

What causes colic? What is remedy?

Colic is the expression of intestinal pain from whatever source. There is no specific remedy for "colic" but if the treatment of what is usually included under the name, the following indications must be met: (a) Relief of pain; (b) Evacuation of bowel contents; (c) Elimination of intestinal gases. It is best to have such treatment in the case of a properly trained veterinarian.—Dr. L. Van Es.

What are the advantages of the side delivery rake?

Some of the advantages of a side delivery rake are:



1. The hay may be raked immediately after cutting for this rake leaves the hay in a small windrow where it will cure without bleaching.

2. The windrows are lengthwise of the field and are consequently much more convenient when a hay loader is used.

3. It serves the purpose of a tedder as well as a rake. —R. M. Dolve.

How can weeds be killed when growing corn?

I would use the harrow or weeder to kill the weeds in corn until the corn is about 5 inches high, after that a surface cultivator.—J. H. Shepperd.

Can fruit be preserved without sugar?

Yes, fruit may be preserved without sugar as follows: It may be canned with a syrup hot or cold process and sealed. Often the cold water process is used in canning pineapple, rhubarb, currants, etc. See Farmers' Bulletin No. 359.—Minna A. Stoner.

When one has sown red clover several times and it has failed, what is likely the trouble?

The chances are the farm is in too dry a section of the state and the clover summer kills for lack of sufficient moisture for both the clover and the nurse crop.—W. R. Porter.

What is the surest way of growing winter wheat?

Winter Wheat demands snow protection. This can be obtained by seeding on corn ground, leaving the stalks to catch snow and prevent its drifting away. The soil in this case is in good condition if the corn has been kept clean. Seeding in barley stubble has been quite successful in some years. Of course neither of these methods are of much avail unless there is a fair snowfall.—R. C. Doneghue.

Which is best for deep plowing, mold board or disc plow?

It depends entirely on the soil. Disc plows cannot, as a rule, equal the work done by mold board plows unless the conditions for plowing are ideal. The draft of the disc plow is less than that of a moldboard plow, but it should be used only in special soils where its work excells that of the moldboard plow.—R. M. Dolve.

What is the smallest size gasoline engine and dynamo that is practical for producing electric light on the farm?

The smallest satisfactory electric plant is one of about two horse-power capacity. Counting ten lamps to the horse power this will supply electricity for 20 sixteen candle power lamps.
—E. S. Keene.

What is the best way to stack corn?

If corn is stacked in the bundle, the best way is to place it in very narrow ricks, not to exceed nine feet wide, and give is as much slope or pitch as can be done without having the bundles slip out of place. If it is shredded, it should be mixed with straw, preferably oat straw and put into the stack in alternating layers of shredded corn fodder and straw.—J. H. Shepperd.

Which scours best, cast iron or steel plow?

Chilled cast iron such as is used in plows is as hard as plow steel and is capable of as high a polish so that, in general, it may be said to have as good scouring qualities as steel. Steel, however, has the advantage that its hardness and temper may be varied to suit local soil conditions while chilled iron must remain about the same. As an illustration may be cited that after many years of experimenting the steel plow manufacturers were able to put out a plow having a steel of such quality and temper that it would scour in the black lands of Texas.
—R. M. Dolve.

Is there any cure for heaves?

There is no cure for heaves, but a heavy horse should be kept out in the open air as much as possible, while bulky feed and dusty hay should be avoided.—L. Van Es.

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ROOFING
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PROF. J. H. SHEPPERD, State Farm Notes.
PROF. W. B. RICHARDS, Livestock.
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GEO. HAUSMANN, Poultry.

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Vol. 15 SEPTEMBER, 1913 No. 3

The greatest study of the farmer is the farmer.

Every nation dug its civilization out of the ground.

The dairy cow and the milk can yet become symbols of genuine North Dakota aristocracy.

Ten cows well fed and properly housed are to the family what the life-boat is to the sailor.

Hello, neighbor! how much moisture have you stored up in your subsoil for the use of next year's crop?

The corn farmer that fails to select enough seed corn this year to last him during the next two years, is short in foresight.

A good many farmers learned to their sorrow, during the past year, that the time to conserve moisture is when there is moisture to conserve. The present season, by the way, will be succeeded by another next year.

Talk of the hayseed farmer and his awkwardness! Without apologizing for the hayseed he is still in condition to give the lawyers in the Thaw case cards and spades, etc. Isn't it about time for farmers to organize a Better Law Practice Association?

The land boomer may not be the community's best friend. Any settler brought in by means of misrepresentation of soil or other conditions, is sure to become dissatisfied and will do the country more harm than the land boomer can do it good.

Are you making daily or monthly preparation for that proverbial "rainy day"? Or are you simply going on the theory that "sufficient unto the day is the evil thereof"? The young man that saves twenty-five cents every day and keeps it at interest until he is too old to perform hard labor, will be mighty glad that he read this squib and—heeded it.

The farmer without a field of alfalfa—even a small one—should soon become a curiosity. Alfalfa will prove a gold mine that, tho it may wear out in time, yet another can be substituted immediately. Like the silo alfalfa has a big mission in the state. Of course, we are bound to have all-wheat-farmers yet for a season, but they will need to borrow money to continue in business. The alfalfa field and the silo will provide it for them.

The third annual corn festival of Ransom County will be held at Lisbon the early part of October. That county was the first in the state to hold such a festival, and the results from this undertaking have been far-reaching. In fact, that county has become a seed corn center, largely thru the interest in pure bred seed aroused by these festivals. Would that every county in the state had such an annual gathering!

The mere act of making money is seldom satisfying. The purpose for which money can be used and for which it should be used, should be given as much consideration as money-making itself. Simply to work hard, to scrimp, save, and grind faces for dollars is poor business. There doubtless is some satisfaction in possessing title to what one has no real need of but that others would like to have; but the game is not worth crawling to capture it.

Every farmer in the state should take pride in donating the price of one bushel of wheat for the purpose of building the boys a dormitory on the Agricultural College campus. The boys have organized the movement because they need a safe, comfortable home while attending college, just such as boys at the other state educational institutions are provided with. Because they come mostly from farm homes is no reason why they should be discriminated against.

Agriculture should be boosted for its own sake and for the welfare of every citizen of the state. Every influence for its betterment that human intellect can devise should be extended to it for the world will need more and more of the products of the soil as population increases. Happy the state that has the means of supplying the world's greatest need—bread. Every agricultural college should spend not less than $100,000 annually for College Extension work. The states could make no better investment.

Food for plants is just as necessary as food for animals. Without nourishing food an animal will perish within a short time. Given plenty of food and of the right kind, the animal will fulfill its function, whether that function is work, wool, beef, pork or dairy products. The soil, on the other hand, requires food just as certainly as the animal in order to properly perform its function. It will not starve as soon as the animal, but just as surely. Give the soil an equivalent of what the crop takes from it, and each year finds it prepared to yield up its increase the same as during previous years. Feed the animals. Feed the soil.

Every community should have a farmers' club. The Grange, doubtless, is the best and most permanent form of farmers' organization yet devised. The Grange has accomplished great things for rural communities all over the country and is still after other reforms. Only thus can farmers hope to exercise any weight or influence that will enable them to hold their own in the face of the intense competition that characterizes this commercial age. Individualism puts the one against the many. Only by organization can farmers hope to come into their own. Little local clubs, good in themselves, are not sufficient. Too often they are encouraged as a palliative because they are harmless.

The North Dakota Farmer is furnishing the homes and the schools of the state with articles adapted to North Dakota needs. We have special reference to the most excellent work of Prof. G. W. Randlett. Beginning with this issue the first of a series of letters by him addressed to "Miss Ura Leader," and following the state course of study, makes its appearance. If the teachers of the state will follow the valuable advice given, if the parents will co-operate with the teacher who is in reality a "leader," if the pupils will take advantage of the changed attitude of our school system toward the rural child, the agricultural industry of the state will receive such an impetus as it has never before felt. The hope of the state is the child now in school. Let us co-operate with him!

Pure Food Advertisers

The products advertised below are in compliance with the pure food law of North Dakota and of the highest grade. ASK YOUR GROCER FOR THEM.

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A GUARANTY OF PURITY. A WELCOME GUEST at every table where the HOUSEWIFE demands the BEST. THE MONARCH LABEL insures QUALITY in Coffee, Catsup, Pickles, Maple Syrup, Canned Goods or any article bearing the MONARCH BRAND of REID MURDOCH & CO CHICAGO.

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One package, 10 cents, makes one pint of wholesome Fruit Jelly. All flavors from true fruits.

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CEREKOTA
Self-Rising
Pancake Flour

Is a Scientific Preparation of Healthful Appetizing Ingredients and the Best Flour Milled in North Dakota
GUARANTEED Pure and Wholesome
Ask Your Grocer for a Trial Package

Bemmels Milling Company
Sole Manufacturers
Lisbon, North Dakota

Livestock Department

FARM AND STOCK NOTES

N. J. Shepherd,

With poultry do not feed grain as an exlusive diet.

The more quickly the hog is made fat the greater the profit.

The non-producers in the poultry yard consume as much as the producers.

Sheep will thrive on most of the foods produced on the average farm.

The disposition of a horse has much to do with his value on the farm.

It takes every day grooming to open the pores, soften the skin and produce a healthy sleek coat.

Do not attempt to churn poor or thin cream at a low temperature or there will be trouble.

Much of the value of butter and cheese depends upon the quality of the milk from which they are made.

When a flock is laying thin shelled eggs it is indicative that there is a deficiency in the shell-making element of their food.

In all pruning it is safer to err on the side of pruning too little rather than of pruning too much.

The man who is careless about his harnness and who allows his horse to drive himself will spoil any horse no matter how well bred.

In the dairy clean all utensils as soon as possible after using them, the longer they remain without being cleaned the more time will be required to do the work.

Keep some of the best lambs every year and sell off a number of the oldest ewes and all that are unprofitable. If you do not your flock will soon run down.

When buying sheep, select those that are close wooled. If the wool comes clean up to the eyes so much the better, for wool is one thing sheep are kept for.

Common stock can be vastly improved by good food and care, but the same end can be accomplished, more quickly, more surely and with a better final outcome by the introduction of good blood.

The sow should raise two litters each year and she must have a period of rest between the farrowing times in order to renew her strength and flesh and be able to mother well the following litter she may produce.

Never feed on the ground, if it can be avoided. Fowls do not like filth and are cleanly in habit. More disease is generated by feeding in dirty and filthy places than from any other cause.

Of all products sold from the farm butter takes the least fertility and restores the greatest amount to the farm, while it is well known that the most fertile sections of the country are where dairying is carried on.

WHAT CREAMERIES MEAN TO A COUNTRY

The first co-operative creamery in Todd County, Minnesota, which is only about 70 miles from the North Dakota line, was organized in 1900 in the village of Bertha. This creamery opened for business in June of that year with 38 patrons. In 1912 it had 284 patrons. The total business the first year was less than $3,000. Now it pays out over $10,000 per month, which for the year 1912 amounted to a total of $121,300.28.

During the past 12 years new creameries were organized all over the county until they now number 19, with 3,500 regular patrons, and in 1912 they paid to the farmers of Todd County $1,082,537.08. How is that

THE BEST LINIMENT

OR PAIN KILLER FOR THE HUMAN BODY

Gombault's

Caustic Balsam

IT HAS NO EQUAL

For the Human Body —It is penetrating, soothing and healing, and for all Old Sores, Bruises, or Wounds, Felons, Exterior Cancers, Boils Corns and Bunions CAUSTIC BALSAM has no equal as a Liniment.

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Rheumatism and all Stiff Joints

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Cornhill, Tex.—"One bottle **Caustic Balsam** did my rheumatism more good than $120.00 paid in doctor's bills." OTTO A. BEYER.

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HOLSTEIN, GERNSEY OR JERSEY CALVES FOR SALE Usually a few of each breed from three to six weeks old showing fine breeding; tho unregistered. Price only $17.50 each, males or females, crated and delivered to express company. Approximate express rate furnished. Heifers and cows always on hand. **Paul E. Johnson, South St. Paul, Minn.**

FAMOUS O. S. C. SWINE. Am now booking orders for fine pigs of April farrow. Price: $18 each; $35 a pair. All Stock recorded free. Shipping point: Mankato.
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ASH GROVE FARM- Knudtson & Son, Props. Breeders of Pure Bred Percheron Horses and Short Horn Cattle, Both Sexes. Stock for Sale.
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WANTED. Live Foxes, Skunks. Mink and Badgers, any t me.
Envilla Stock Farm, - - Cogswell, N. D.

WANTED: A Newfoundland male pup.
ALBERT JAQUA, Tokio, N. D.

AGENTS WANTED. Farmer's Directory, Account Book. Exclusive home territory. Easy seller. Big inducements. Particulars Free. Write
Naylor 938 Ft. Wayne, Ind.

HALF SECTION FARM, Burke County, North Dakota—House 24x34, basement barn 30x50, addition 16x40, granary 10x12; well of fine water; 225 acres under cultivation; 60 acres fenced; fine hay meadow which cuts about 100 tons a year; three miles from market. A snap at $24 per acre. Would take in a good automobile, or some good income property, but must have $1,000 cash.
H. L. Lyon, - - - - Bowbells, N. D.

HOUSEKEEPER WANTED. One to go into partnership in raising poultry three miles from town at my home. Am 50 years old and have one grown son. The right one will be wanted for keeps.
Lock Box 324 - - - Dickinson, N. D.

WANTED! 200 GAS TRACTOR MEN

To become experts through the Y. M. C. A. Gas Tractor and Auto School, Fargo, N. D. Three and six months' courses. School opens Oct. 15. Address **Ralph R. Wolf, Gen'l Sec.**

Twenty Acres, Irrigated, Part-bearing Orchard. 1000 boxes this year. I am the owner and must sell in 30 days. Write me for particulars. Photo
W. H. ELLIS Coenid Alene, Idaho.

for 12 years of co-operation? Is it worth while?

What the co-operative creamery has done for the farmers of Todd County they will do for North Dakota farmers.

The creameries of Todd County are all owned and operated by the farmers on the co-operative plan. The reason these creameries have been so successful is because they were first established in the right way. It is the right kind of organization and genuine loyalty of the farmers of Minnesota that has built up the creameries, enriched their farms, and put real cash into their pockets.

SILO FILLING EQUIPMENT

By C. F. Chase, Prof. of Farm Mechanics, N. D. Agr. Col.

There are as many sizes and makes of ensilage cutters as there are of silos, and the prices paid for them will vary as much.

Few farmers in North Dakota can afford to be without a silo. A silo will cost from $200 to $500, depending upon its size and the material from which it is built. There is a greater range in the cost of equipment for filling silos than there is in the cost of the silo itself.

Intensive farmers are finding it more economical to use one of the small-sized cutters and put into the silo a less amount of ensilage each day. This allows time for settling, saves the labor of treading and in most cases will do away with extra hired help.

In some localities the enclosed, sheet iron, single chain, web carrier is taking the place of the blower. Such a carrier and cutter requires about two-thirds as much power for operating as the blower cutter does.

The following table, with exception of cost figures, taken from date found in four recent trade catalogs and representing averages shows the capacity and power required for different sized cutters.

Size	Horse Power with carrier	Horse Power with blower
14 inch	5¾	10¼
16 inch	8	12
20 inch	11	18
Size	**Capacity in tons per hr.**	**Approximate cost**
14 inch	9½	$115.00
16 inch	13	135.00
20 nich	18¾	155.00

If we were to judge by the range in prices paid for gasoline engines we would conclude that there is no such a thing as a standard gas engine. The minimum cost of gasoline engines on skids is about as follows:

6 H. P.....$150.00
8 H. P..... 240.00
10 H. P..... 330.00
12 H. P..... 410.00

From these prices the total cost of equipment for the 14 inch cutter and

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Terms Reasonable LISBON, N. D. Write for dates

FINE STOCK FARM

We own and are offering for sale 2240 acres in Richland County, N. D. This has a fine set of buildings. It is near the main line of the Soo and also to the Fargo-Southwestern branch of the N. P. No finer proposition for raising livestock. Convenient to market; the finest kind of pasture, all fenced; more hay than you need; very good water and plenty of it; local and long distance telephone connection. It pays to raise livestock and this is a good place to raise it. Write us for particulars and terms.

NORTHERN TRADING CO., Casselton, N. D.

ST. PAUL UNION STOCKYARDS CO., SOUTH ST. PAUL, MINN.
Comparison of Receipts and Shipments of Livestock for August, 7913

Receipts

Railroads	Cattle	Calves	Hogs	Sheep	Horses	Total Cars
C. R. I. & P.	211	90	1129	50		26
C. G. W.....	753	343	1775	916	67	73
C. M. & St. P.	2883	469	7179	2519	135	262
M. & St. L ..	742	244	8382	457	1	169
C.,S.P.,M.& O	3739	727	15994	2972	178	431
C. B. & Q. ..	192	105	653	447		22
M.St.P.& S.S.M.	6873	1993	3867	2169		357
Gt. Nor.....	5949	2276	8929	18300	138	514
Nor. Pac.....	8057	1113	3100	20464	108	468
St. P. B.& T.						
Driven In....	369	86	574	179	6	
Total.....	29768	7446	51582	48472	633	2322
Inc. over 1912			19943		24	
Decrease.....	15666	5138		2423		281
Jan. 1 to date	209385	80950	748666	203988	3643	20858
Inc. over 1912	11938		82290			2360
Decrease.....		10264		7264	550	
Average Wts.	823	209	253	83		

Shipments

C. R. I. & P.	1688	1			18	51
C. G. W.....	2356	135		228	87	85
C. M. & St. P.	4464	131	4392	7691	79	237
M. & St. L. ..	936					31
C.,St.P.,M.& O.	5139	112	193	8484	85	212
C. B. & Q....	1701	82	4254	17332	49	187
M.St.P.& S.S.M.	1463	35	128	1689	50	62
Gt. Nor.	923	103	3	12	128	38
Nor. Pac.....	483		76	105	50	24
St.P.B.& T...						
Driven Out ..	571	191	136	91	37	
Total.....	19724	790	9182	35632	583	927
Inc. over 1912			952	1218	10	
Decrease.....	12195	1884				361
Jan. 1 to date	143294	17886	172779	138755	2129	7111
Inc. over 1912	20402	3373	15190	10682		939
Decrease.....					1996	

web carrier is $265.00; for the blower equipment and same sized cutter, $445.00; 16 inch cutter and web carrier, $375.00; 16 inch cutter and blower, $545.00. These are minimum prices. They show comparative costs of carrier and blower equipment.

SOME PRECAUTIONS TO FOLLOW IN PURCHASING DAIRY CATTLE

W. B. Richards, Prof. Animal Husbandry, N. D. A. C.

If one desires to buy pure bred dairy cattle of good grade cows, and is not familiar with the characteristics or points of the breed or what constitutes a good milking type, it would be advisable and profitable for him to secure the services of some one who does know, to help select the stock. There are all degrees of merit among the individuals of all the dairy breeds, and there also is a wide variance in the quality and merit of grades. If this is impossible try and buy from only breeders of good repute. Make careful inquiries as to the reputation of the breeders with whom you buy pure bred cattle. Buy of a breeder rather than a dealer. There are a large number of dealers in the business of vending pure breds, who can not be relied upon as generally as the breeders.

Avoid Tuberculous Cattle

This disease is quite prevalent in all dairy cattle sections and great care should be exercised not to buy cattle infected with the disease. A good method to follow to make sure that the cattle are clear is to have them removed at once after purchased to some central point where you can test them yourself or have a competent veterinarian of your own selection do it for you. Purchase them on the condition of acceptance if they pass the tuberculine test. Removing them from the premises of the seller at once will help obviate the seller from injecting tuberculine into them, which interferes with the reliability of the regular test. Do not accept a certificate covering the tuberculine test for any animal even tho it is made within 30 days unless it is accompanied with a guarantee, or unless you know the veterinarian who issued the certificate to be absolutely reliable.

Avoid Contagious Abortion

Contagious abortion is also very prevalent in most of the dairy districts of this country, consequently cows that are infected or have been exposed to the diseases should be avoided. There is no practical test for this trouble, so one is largely at the mercy of the seller as to whether he gets cattle clean or not. One way to avoid it is to find out how many heifers the seller has in this herd; demand to see them. If there are but few on hand in proportion to the number of cows in the herd, it is wise to draw the conclusion, has not been able to raise any because of contagious abortion. Few good breeders of dairy cattle sell their heifers before they test them out for production.

Avoid Buying More Than Necessary

My advise to the farmers of North Dakota under present conditions is not to buy any more cows than necessary to make a legitimate start, but make the best use of the cows they have on hand. Keep every cow that is capable of raising a calf. Rather inferior cows bred to a good pure dairy sire will produce some heifers that will make as good grade cows as can be bought at the present time in the dairy districts unless an exorbitant price is paid for them.

SHROPSHIRE RAMS

I have forty-five thoroughbred Shropshire rams for sale. Coming two and three years old. Prices right. Call and see what I have to offer or write.

FORRESTER H. SMITH

Amenia - - North Dakota

Pedigreed Stock

PEDIGREED POLAND CHINA HOGS & SHORT HORN CATTLE FOR SALE. NOW BOOKING ORDERS FOR SPRING PIGS OF THE

BEST KNOWN BREEDING

WHITE DENT SEED CORN FOR SALE

Booking orders for Barred Plymouth Rock Eggs & Mammoth Bronze Turkeys

Stock for Sale at all times. Pedigree Furnished. Write your wants to

C. H. SCHUTT
R. R. 1, Fairmount, N. Dak.

ST. PAUL UNION STOCKYARDS CO., SOUTH ST. PAUL, MINN.
Comparison of the Origin and Disposition of Livestock for August, 1913

Origin of Livestock Received

States	Cattle	Calves	Hogs	Sheep	Horses	Total Cars
Minnesota ...	12164	5309	42468	9220	31	1263
Wisconsin....	3667	1461	3059	3408	11	233
Iowa.....	542	13	691		193	44
Far South ...	1221				89	39
So. Dakota ..	1841	100	1514	16	170	104
No. Dakota..	9196	497	3850	2472	12	433
Montana	1137	86		32472	126	201
Far West....				508		2
Manitoba&N.W.T.....						
*Misc.....					1	1
Returned				376		2
Totals.....	29768	7446	51582	48472	633	2322

*Eshpemming, Michigan.

Disposition of Livestock

S.St.Paul P'k'rs.	9512	5219	42198	11911		
Cy.& St. Butch	459	190	71			18
Outside Packers	71		8369			93
Minnesota ...	6612	352	215	7301	266	254
Wisconsin....	1935	68	255	847	155	81
Iowa.....	4062	66		404		24
Nebraska....						
Kans.& Mo...						
So. Dakota ..	806	7		936		26
No. Dakota..	732					20
Mont. & West	567	28			42	16
Far South ...						
Manitoba&N.W.T.	22	5		936	46	7
Mich.&E.Can.	58				7	3
Chicago.....	1977	29	272	25049	49	199
Ills.(ex Chicago	1970	43			18	72
Eastern Points	453	2				13
Returned				159		1
Totals.....	19724	790	9182	35632	583	927

Poultry Department

KILLING POULTRY BY KINDNESS

Michael K. Boyer

In the yards of the beginner, especially the man who keeps poultry as a hobby—each year a large number of fowls are actually killed by kindness. The writer firmly believes that these imaginary kind acts are the fruitful source of more deaths in the amateur's yards, than anything else.

Fowls have a peculiar nature in that they are always hungry, or apparently so. It is true they can readily be stalled, and will leave part of their feed, but give them something different from what they have had, and they will, as a general thing, pitch into it at once.

The poultry in the backyard, as a rule, get all the table scraps—meat, potatoes, other vegetables, and bread—and besides the beginner imagines that they must have a regular amount of morning mash, and the usual quantity of grain at night. It is not very long before the fat accumulates and then there is an overplus, and one after another the fowls die suddenly—fall dead off the roost during the night; or die while on the nest; or fall of a sudden without apparently a reason for it. Apoplexy, vertigo, leg weakness, and kindred ailments, all come from this diseased condition, overfat.

The fowls in the yards of the beginner are apt to be too much petted. It is right, it is proper, to have tame fowls, but it is wrong to overdo the matter. It is very cute to have the hen eat out of one's hand, but it will be only a question of time before she will be so fat that she will cease to be a layer, and grow prematurely old.

The duty of the beginner is to have regular feeding hours and stick closely to them; he must have the rations well balanced so that they will not get too much of either carbonaceous or nitrogenous material, especially the former. He must well feed, but not overfeed. Give the fowls what they will eat up quickly and cleanly. Also be careful not to underfeed, for that is as bad as overfeeding. Where there are plenty of table scraps it is best not to feed a morning mash, but instead at night give a good handful of mixed grain (equal parts of wheat, oats and corn,) for each fowl in the pen. That will be about what they will need to fill their crops, and that is about what they will quickly and eagerly pick up. Even if they do seem hungry after eating it, it is best to allow no more. Fowls are not always hungry when they run after you. It becomes a habit with them.

Where mash is fed in the morning, about half the quantity should be given, by measurement, that is given of grain at night. If too much mash is fed, the fowls are apt to sit about all morning and do not take proper exercise, consequently cannot properly digest their food.

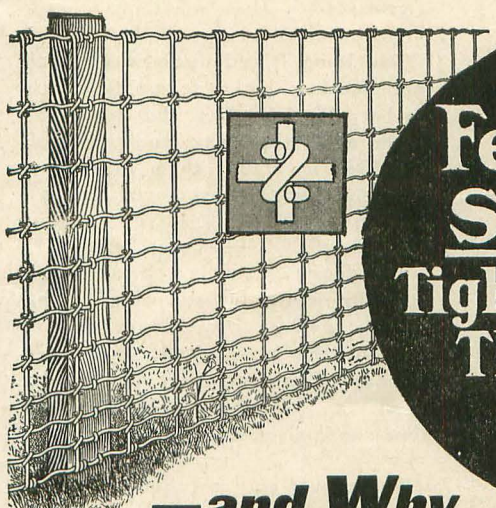
If referring to the quantity of food given to fowls, reference is made mainly to matured birds, those in laying and breeding condition. Young, growing stock should be given all they will eat, provided, of course, a good balanced ration is allowed them. But the appetites of both the old and young stock must be studied. When it is seen that they do not seem hungry when the regular feeding hour arrives, it is best to cut out that meal, or give them only a part of it. Care must be taken that they do not "get off their feed." The bill of fare, too, must be a variety, for to confine fowls to a single grain diet will quickly destroy their appetite and eventually destroy their usefulness.

It is difficult to overfatten hens when they are in the height of their laying, the dangerous point being when they are not laying. In the

Bargains In Farms

In Central Missouri, midway between St. Louis and Kansas City. Two lines of Railroad. Division point. Write,

R. P. Stone, - - Eldon, Mo.



The Fence That STANDS Tight and Trim The Whole Year Round

(15)

—and Why

Every farmer knows that a fence which will stay tight and trim through summer and winter must be built to give and take. It must be made of tough, springy wire, and in such a way that in contracting and expanding it will take up as much as it gives out.

There are several reasons why

"Square Deal" Fence

Stays Tight and Trim the Year 'Round

FIRST: Note that the strand wires are wavy. This gives the fence ***elasticity***—its give and take—***keeps it tight*** summer and winter.

SECOND: The Stay Wires are ***one-piece*** from the top wire to bottom one, forming the backbone of the fence, which stiffen and support it, absolutely preventing sagging and bagging.

THIRD: Note the ***SQUARE DEAL LOCK*** which double-grips the wires so tightly they cannot possibly slip. It is one of the most important parts of a wire fence.

We use the toughest, strongest wire—draw it, anneal it, galvanize it in our own mills; then weave it into Square Deal Fence. We know how it is made—the kind of material that's in it—stand back of it with our Square Deal Guarantee, which insures every purchaser a Square Deal and perfect satisfaction.



FREE—Write for Catalog, Prices and Ropp's Lightning Calculator

We want you to know more about this "honor built" fence. Our catalog tells the story. If you will write for a copy we will send you FREE, a regular 50c copy of Ropp's New Lightning Calculator, the greatest money, time and labor-saving work for farmers and others, ever used in the business world.

THE KEYSTONE STEEL AND WIRE CO. 5815 Industrial Street - PEORIA, ILLINOIS

production of eggs the hens must be well fed, and wisely, too. The strain on them in building up the tissues and in manufacturing the eggs, requires good, nourishing material and enough of it. It is equally so in growing stock—but another danger mark is when the pullets are matured and about beginning to lay. If they then are overfed, the laying period will not only be delayed, but the crop of eggs will be unsatisfactory.

In short, killing by kindness must be avoided. Give sufficient but not too much; to overfatten is but to invite disease.

NOTES

Geese are dressed in the same style as ducks.

Authorities on artificial incubation generally agree that smoking a pipe or a cigar in the incubator room is injurious to the hatch.

CHICKEN THIEVES

Steal millions of dollars from Farmers and Poultrymen, and how to get rid of them is a problem many cannot solve. It is very easy to do if you use Licecil, Metzger's latest discovery, a new and modern method of doing away with these thiefs. To quickly exterminate them and make more money with poultry use Licecil, the strongest lice killing compound made. Works like magic. Simply put a few drops in nests and hang balance of uncorked bottle high in coop directly over roost. No painting, no spraying, no dusting. Lice, mites, chiggers, bed bugs, roaches, ants, etc., have no lungs; they breathe thru the pores of their body and cannot live in these powerful evaporating vapors, which are three times heavier than air and descend in a misty form penetrating feathers, cracks and crevices everywhere, instantly destroying insect life. Licecil vapors will not injure chicks. Cheapest to buy, easiest to use. Price $1.00 for season's supply. Money back if it fails. Your dealer will supply you, if he refuses send $1.15 for package express prepaid.

W. H. METZER COMPANY
Quincy - - Illinois.

Pullets that are not properly grown, or in some way have received a setback while growing, will be correspondingly slow in starting to lay.

Turkeys for market should not be deprived of food for a longer period than twelve hours. They are killed by bleeding in the mouth and neck.

The more neatly a carcass is dressed, the better the chance to sell it to a good trade. Attractively dressed poultry sells itself, while inferior stuff goes begging.

A sovereign remedy for limber neck is four drops of turpentine in a teaspoonful of water. Limberneck is caused by fowls eating some dead animal matters that has bred maggots.

Ducks should have attained their market weight when ten weeks old. After that the growth of pin feathers start and they will gradually lose weight until the new crop of feathers is grown.

The Long Island duck raisers scald their market ducks, removing all the feathers but those on the head, part of the neck, the flights and tail feathers. Boston prefers them dry-picked, with tail feathers removed and pin feathers shaved.

The looseness of bowels of a fowl generally is due to something it has eaten. Increase the amount of midlings in the mash, and add a teaspoonful of charcoal every day to each quart of soft food. Fowls should have charcoal at least twice a week.

The proper way to check the progress of liver disease is to change the food. The fowls first are afflicted with indigestion, and this not being treated, the trouble advances to some liver complaint. All food of a stimulating nature must be dropped from the bill of fare.

Strictly first-class market stock is well fatted, the breast bone does not stick out like the keel of a boat, the meat is yellow in color, the carcass well dressed, cleanly picked, and not roughed all up nor torn. It is also clean of pin feathers, and no dirt is found on the legs and feet.

POULTRY ON THE FARM

We believe that every farmer should have a flock of paying poultry. To encourage our readers to read reliable literature on this subject, we offer for a short time two six-month's subscription: one to the "American Poultryman" and one to the North Dakota Farmer, for the names of ten farmers and a dime or five two-cent stamps. Why not do it *now?*

BRED TO LAY

And prize-winning strain. Barred Plymouth Rocks, White Orpington Indian Runner Ducks; Silver Spangled Hambergs; Single Comb White and Brown Leghorns. Stock and Eggs at Reduced prices.
F. C. MITCHELL CROOKSTON, MINN.

Rose Comb Red Cockerels

Rose Comb Red Cockerels for $1.50; and Fauwn and White Indian Runners, $2.50 per pair, if taken now.
Mrs. Ira Heidlebaugn, Pleasant Lake, N. D.

White and Columbian Wyandottes, Light Brahmas, and S. C. White Leghorns
Over 30 years a breeder. Stock and eggs for sale. **Michael K. Boyer, Box 27, Hammonton, New Jersey.**

S. C. Buff Orpingtons, S. C. Black Orpingtons, M. Pekin Ducks and Indian Runner Ducks.
Maude I. Matthews - Larimore, N. D.

THE BLUE RIBBON POULTRY FARM

Twenty Varieties Pure Bred Chickens, Ducks, Geese, Turkeys, Northern raised, fine plumage and 500 prizes to their good. Lowest prices on stock and eggs. Manufacturers of the Blue Ribbon Incubators and Brooders.
Blue Ribbon Poultry Farm
P. O. Box 427 Fargo, N. D.

HATCHING EGGS of the Leading Strains and of the Prize Winning kind. Mammoth Bronze Turkeys, 12 Eggs $1.50 Barred Plymouth Rock 15 Eggs, $1.50: 50, $3.00: 100, $5.00. SEED CORN FOR SALE. Write all orders to **C. H. SCHUTT**
R. R. 1 Fairmount, N. D.

ELEVEN YEARS A BREEDER

Pure-bred poultry: White Wyandottes, Toulouse Geese, Bourbon Red Turkeys and Pearl Guineas. Stock for sale. Write me your wants.
E. A. TOW, R. R. 3 LISBON, N. D.

EGGS FROM BUFF ORPINGTONS AND S. C. RHODE ISLAND REDS at special low prices Bred to lay. F. M. PEZALLA, Cayuga, N. D.

BRED TO LAY AND WIN

If you want Quality write
Enoch J. Peterson, Alexandria, Minn
Formerly Peterson Bros., Harwood, N. D.

HAUSMANN POULTRY FARM
Breeders of W. Wyandottes and S. C. W. Leghorns
Hillsboro, - North Dakota

WHITE WYANDOTTES. If you want eggs from an early maturing, heavy laying, prize winning strain of White Wyandottes write me. I am developing a special laying strain by use of the trap net. Prices reasonable. Write
M. C. JAMES, Valley City, N. D.

MAKE YOUR HENS LAY MORE EGGS
I have a method that will make your hens lay every day; it never fails. Write for it. 2c stamp.
MRS. B. F. WILCOXON,
North Platte, Neb., Dept. 8

FOR SALE. M. B. Turkey Toms, raised from our Diploma Stock, $5.00 and up; also Eggs from 26 varieties poultry. Catalog free.
L. GULDEN, Osakis, Minn.

1900-C. C. DIBLEY & SON-1913
QUALITY—UTILITY—EXHIBITION
Single Comb Rhode Island Reds, Barred Plymouth Rocks, White Plymouth Rocks, Light Brahmas, Buff Wyandottes.
BIRDS OF HIGHEST QUALITY: Winners in the following shows 1913: Minneapolis and St. Paul, Minn., Fargo & Valley City, N. D. Mating list free. **WOLVERTON, ROUTE 1, MINN.**

School and Home

ELEMENTARY AGRICULTURE

Miss Ura Leader,
Ruraldale, N. D.

Dear Miss Leader:

I am in receipt of your various communications, in which you ask me to write you concerning the course of study in agriculture for rural schools. In this letter, let me undertake to offer a few suggestions on the September work in the seventh grade

As you read the course of study you will note that the purpose of the outline for the month is to "train the powers of observation and to learn that there is a fund of knowledge to be gathered from field and roadsides." Too many teachers—altho I trust you are not one of them—put entirely too much dependence upon the ordinary text book. They look to these dry printed pages for both fact and inspiration. It were better by far if they would go out and try to open up God's great text book of "Outdoors." This would serve quite as well as a text of information and far better as a source of inspiration.

During the month of September you are to study the cereals, millets and clovers. You are not expected to gather all the information obtainable concerning these nor to impart the same to your boys and girls, but rather to show them that the open fields and roadsides furnish a valuable and never-ending source of information.

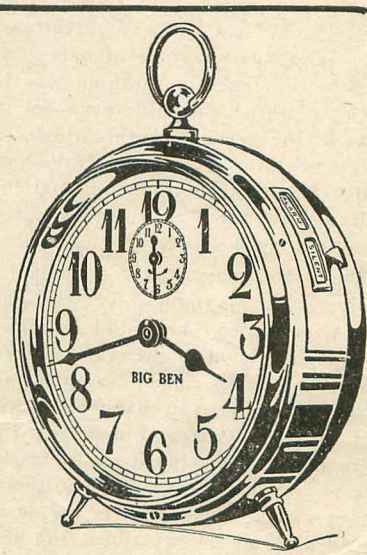
I would suggest, therefore, that you go with your pupils out thru the fields for the purpose of collecting these samples and specimens. You will be in no way neglecting your duty in my opinion even should you take up some portion of the regular school day for this business. You are a teacher whose business it is to give the best possible training to the boys and girls who are placed in your care. I can see no possible reason for arguing that this must necessarily be done within the four walls of your schoolroom, or in any special or stereotyped form of exercises. Therefore, I say, take your pupils, and if you think best do it during some part of the regular school day, and assist them in the collection of all the different samples of wheat, oats, barley, rye, timothy, brome grass, clover, alfalfa, etc., that it is possible to find.

After having made an initial collection I am very sure that boys, and girls as well, in their passing to and from the school building and in their various activities about the neighborhood will be able to add other valuable specimens. When such material is collected, select an ample amount of the best of each variety, classify it properly and tie it up in some neat form for future referrence. But I believe you once hinted to me that you were not able to identify the varieties of wheat for instance. Let me give you a few suggestions that may assist you. You will find all of the wheat heads either bearded or bald. Therefore separate them all first into these two general classes. Now, examine more carefully the heads that bear no beards. You will find that in part of these the chaff or glume is perfectly smooth, while in others it has a velvety or hairy appearance. Therefore make two piles of these; one of the smooth chaff; the other of the velvety chaff.

Another day bring out the pile of bearded heads and observe them closely to determine if they are all alike. Probably you will find some of the heads short and rather compact with a long stiff and bristling beard, while in other cases the head will be longer and rather narrower with a shorter beard. Make two piles of the bearded heads, then, as you did previously with the bald varieties. You now have separated all of your wheat samples into four different classes and have in all probability the four principal varieties grown in this state. The bald velvety chaff kind is blue stem. The short heads with the long bristling beard is durum or macaroni, while the longer heads with the shorter beard is probably velvet chaff.

On another occasion I would suggest that you shell a few heads of each of these varieties and note all possible differences in the kernel. You will probably be able to note this difference between the blue stem and fife, that is, the blue stem will be a kernel somewhat elongated, while that of the fife will be rather shorter, thicker and more compact in appearance. There may be also a slightly darker color connected with the fife variety. In the case of the velvet chaff the general shape of the kernel will be more nearly like that of blue stem. The side opposite the groove, however, will be rather more prominent, that is, the angle will be somewhat sharper, while the groove itself will be rather narrow and close.

These three varieties are rather hard to identify but what I have just said to you may help you somewhat. I would advise that if you are not confident of the proper classification of these samples that you call in the assistance of some expert wheat grower or wheat buyer in the neighborhood. As far as the durum or macaroni is concerned you will have no difficulty in its identification in that the kernels are decidedly larger than



BIG BEN

—presenting TWO Ways to get up early

He'll get you up *on the installment plan*, a little at a time, by ringing every other half minute for ten minutes. Or he'll do it all at once, with one long, five-minute ring.

That makes him *two good clocks in one*, to suit everybody's taste in early rising.

He plays no pranks. He won't go off before it's time and rob you of your full measure of sleep. He won't go off behind time and rob you of your work time. It's Big Ben's business to run on time, to ring on time and to stay on time.

He helps you get the farm hands out early.

Then he sticks around the house and keeps time all day for the women folks so they can have your meals on time.

There never was a clock that fitted in better with the farm work.

Triple-nickel plated, so handsome you'll want to keep him in the parlor instead of a bedroom. Seven inches tall, has big, easy-winding keys, large hands, and big figures and is built of good implement steel so he'll last for years.

Twenty thousand jewelers sell him—one in your neighborhood, probably. If yours doesn't, just send a money order for $2.50 addressed to *Westclox, LaSalle, Illinois*, and he'll come to the front door, if the parcel post does, charges prepaid.

the others and lighter colored, quite clear or almost transparent.

I would suggest that you retain that portion of your sample not already shelled for future study and also that a few kernels of the shelled grain be put in small bottles or vials and properly labeled. Other and larger samples may be brought from the grain bins in the homes of the pupils for further study and identification.

Make a study of oats in somewhat the same manner, that is, classify them, first, as to color, white, black, yellow, etc., then as to shape of head. Some are whorled, that is, where the parts of the head bearing the oats are decidedly branching or spreading in all directions from the central stem. Others are called side oats because parts of the head all hang on the same side. Cut open kernels of oats. Notice the difference in the hull, whether thick or thin, the difference in the meat of the kernel, whether thick and heavy or thin and light. Have boys bring samples from their own oat bins and compare them as to weight, color, sweetness of smell, etc.

Now you may have difficulty in finding millet samples, yet I fancy that patches may be found in almost any neighborhood in the state. If you can find them, collect samples and classify them as you have done with the wheat and oats. I may say that there are two principal types of millet. One is known as fox tail, the other as broom corn. The foxtail is the smaller and finer of the two types, the head of which appears somewhat as a timothy head except that it is much larger, the whole head giving somewhat the appearance of the tail of a fox or squirrel; hence the name. The varieties of foxtail are German, Siberian and Hungarian. Of these three the German is rather the largest and coarsest, while the Hungarian is perhaps the smallest and finest. Millets of the foxtail type are used principally for hay purposes. Farmers who find that a field of clover or alfalfa has winterkilled or failed to catch because of the preceding summer's drouth or for any other reason find they are short of a hay supply often sow millet late in the spring time, as a hay crop can be harvested the same summer. In fact, it may be seeded as late as the latter part of June and still be ready to harvest for hay before the killing frosts of fall. Broom corn millet is much larger and coarser, producing a much larger seed, the head taking on the branching appearance of broom corn; hence the name. This is raised more particularly for its seed value than for hay purposes. The seed is used principally in the feeding of hogs. The varieties are hog millet and early fortune. There are, of course, other varieties, but these are perhaps the two principal ones grown in this state.

I trust you will be able to find some clover fields in your vicinity. There are three principal varieties. The first is white clover, usually found in lawns and about farm yards. It does not grow large enough for hay but increases the value of pasture very much. The plant is small and as the name indicates bears a white flower. There are two varieties of red clover, medium red and mammoth red. The latter, however, is not much grown in this state. Medium red is a biennial, that is, it may be seeded during the spring time of one year, usually with a nurse crop, and is harvested twice the second season; after which it is better to plow up the field and plant it to some other crop. The first crop of red clover is cut for hay, usually about the fourth of July. The second is harvested quite late in the season and usually contains the seed crop. The getting of the seed, however, depends largely upon the action of bumble bees. These insects in their search for nectar carry the pollen dust from plant to plant and thus aid in the pollination and subsequent fertilization of the blossoms. Alsike is a Swedish variety, getting its name from the province from which it came. It is quite tall with a rather slender stalk and a beautiful variegated blossom. The feeding value of Alsike is somewhat greater than that of red clover but is not so much grown because it produces but a single crop each year. It also requires more moisture than red clover, hence is not so popular in this state where the rainfall is somewhat meager. I would suggest as you study the clovers that you note especially the shape of the flower in all cases. You will see upon examination that they are very like the pea or bean blossom. They are in fact quite closely related to these plants, all of which have the peculiar faculty of leaving a soil in which they grow rich in nitrogen.

Now, Miss Leader, I have tried to answer the questions you put to me, but if I have failed to make them plain in any case I trust you will write me and a second attempt will be made to clear the matter up. I shall be glad to write you again next month relative to a study of weeds.

Wishing you a large measure of success in the splendid work you are doing in North Dakota, I am,

Yours very truly,

GORDON W. RANDLETT.

ROTATION OF CROPS

The value of the rotation of crops is being demonstrated on the North Dakota Demonstration farms. On most of them a five-year rotation is being practised. To bring the results to the attention of the people in the locality of the farms picnics have been held on the different farms.

DO YOU WANT TO BUY

Or trade your farm, ranch, raw land, city business property, automobile, factory, patent stock, bonds, mining property, etc., etc.?

If you have anything to sell in any state write inclosing 10c. for our big catalogue of investments, exchanges and buyers and our special proposition.

Send full description maps, illustration and lowest price of your property. Address,
Melvin C. Churchill Co., - - Houston, Texas



Mother! Protect Their Eyes With Good Light

A poor light strains their eyes, and the injurious effects may last for life. A good oil lamp gives an ideal light—brilliant, yet soft and restful. The Rayo is the best of Oil Lamps—a fact proven by its long life of usefulness and its adoption in over 3,000,000 homes. Scientifically constructed, it sheds a clear, mellow light, without glare or flicker. No smoke or odor.

Rayo Lamps

Made of solid brass, nickel-plated. Dealers everywhere. Send for booklet. *For best results use Perfection Oil.*

Standard Oil Company, Chicago
(AN INDIANA CORPORATION)

One of the first things on the program was to go over the fields of the demonstration farm. The work that is being done was carefully explained as well as a history given of the crops that have been grown on the fields since they became a part of the demonstration farm as well as the yields for each year. Alfalfa is being grown on most of the farms, plants were dug up to show the nodules. Some of the first cuttings of alfalfa going as high as two and one-half tons to the acre while the other hay crops would be nearly a failure due to the dry weather. Alfalfa is proving to be eminently adapted to North Dakota. The farmers are very much interested in how to get a stand of it.

After the fields had been gone over and explained a meeting was held in the grove or wherever convenient, and talks were given on different agricultural topics. The subject usually called for was stock. Ball games were a part of the program in some places. At Hoople the married men played the single men. The married men won 11 to 3 in five innings.

In some places a picnic dinner was served at others a picnic supper. Two picnics were held each day. Mr. W. R. Porter, Supt. North Dakota Demonstration farms was in charge of the picnics in the southern part of the state while Mr. Amos Ewen, Assistant Superintendent of Demonstration Farms was in charge of those in the northern part of the state. They were assisted by members of the North Dakota Agricultural College and the Better Farming Association. The attendance was 2174.

The work on the demonstration farms is done by the farmer and with the farmer's equipment which makes the results appeal to the farmers more. It is within their reach, and they can watch and see just what happens.

ERADICATION OF WILD MUSTARD
Seventh Year—October

Wild mustard is a well known and very widely distributed weed pest and one which it is very difficult to eradicate when once introduced. R. A. Moore and A. L. Stone, of the Wisconsin Experiment Station, have, however, been quite successful recently in destroying the weed in grain fields by spraying with a solution of iron sulphate.

The solution is made by emptying a hundred pound sack of iron sulphate into an ordinary 52-gallon cask (kerosene or vinegar barrels are gauged for approximately that amount) and then stirring until the sulphate goes into solution. Iron sulphate is in a granular form similar to that of salt or sugar and goes into solution readily. When stirred vigorously seven to ten minutes the sulphate is dissolved. Made in the proportions given, we found that the mixture was practically a 20 per cent solution, the proper strength, altho some German experimenters have had good results by using a 15 per cent solution.

The solution was sprayed on an oat field badly infested with the weed when the plants were in the third or fourth leaf. The results show that

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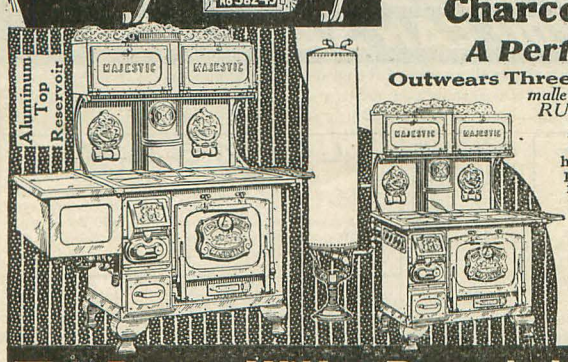
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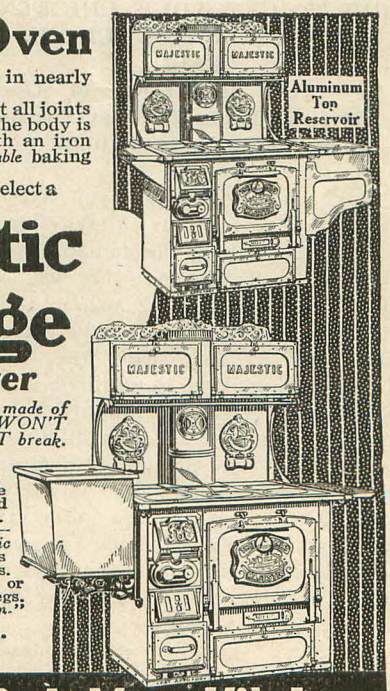
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in all cases practically all of the weeds were destroyed.

The spraying should be done on a calm, bright day, after the dew has disappeared, as the work is more effective if the solution is put on in the warm sunlight. When rain follows the spraying within a few hours the extermination of the mustard will not be complete.

The grain fields should be sprayed when the mustard plants are in the third leaf, or before the plants are in blossom, in order to have the spray do the most effective work. The day following the spraying the tips of the blades of grain may be somewhat blackened, but no detrimental effects can be noticed, either to the crop or grasses seeded with it, two weeks after spraying.

Daisies, cocklebur, bindweed, ragweed, chicory, sheep sorrel, yellow dock, wild lettuce, and many other weeds were partially or wholly eradicated from the fields where tests were made for the extermination of mustard.

Iron sulphate can be purchased for about $11 per ton in small quantities and in bulk for considerably less. One hundred pounds of iron sulphate will make sufficient solution of the proper strength to spray approximately 1 acre. From 20 to 25 acres of land can be covered in a day where the sprayer is kept in contiuual use.

The iron sulphate solution is not poisonous and can be readily handled without injury. White clothing coming in contact with it will be discolored, but not burned.

HOW TO GET YOUR CHICKENS READY FOR THE SCHOOL FAIR

They Must be Strong, of Good Size and Look the Best Possible when the Judge Sees them.

Boys and girls, would you like to know how to get your chickens ready for the school fairs this fall so that if they are really the best they will get the prize? No, you musn't think that the best ones will always get the prize. They must look the best. This is what Professor Alfred Lunn tells us and tho only recently a boy himself he is now a very skillful poultryman in the Oregon Agricultural College. And you know yourselves that if the feathers are dirty and scraggly the chicken looks drooping and discouraged and cannot be expected to win a prize, no matter how fine a chicken it really is.

The first thing to do, Professor Lunn tells us, is to send to your county school superintendent or the secretary of the fair for a premium list. Then you decide just what prizes you are going to try for, not too many, and then try for them hard.

Next you must select the best chickens you have in their class. The ones that are nearest just fully grown "just coming of age, you know," are likely to be the best. They must be healthy, plump, in good flesh and their legs smooth and free from disease. Those that are not afraid of you, that stand up well and move about gracefully, are to be chosen if they are as good in other ways.

Now you are to get them ready for shipping. About four days before you are to send them to the fair you are to give them a good bath. Get three tubs or large pans and put warm water in the first, water a little cooler in the second, and water with just the chill removed in the third. Take your chickens one at a time and soak them in the first tub until their feathers are wet thru. You may put the head under for just a moment even if they do squirm. Then place them on a bench or table and go over with a good soap rubbing it down well into the feathers. Then wash them in the second tub, brushing gently in the direction the feathers go. Then rinse them in the third tub. Gently lift the feathers with the hand and stroke them until they are about dry. Last of all place them in a warm room until entirely dry.

Now you are to train them to coop and to handling and have a chance to show just how skilful you are. Get a coop for each "rooster" and one for every two or three pullets or hens. The coops are to be a little taller than the bird when it stretches itself so that it can't bruise its comb on the top. For a very tall bird thirty inches is right, but for your tiniest bantams 12 inches is enough. Put three or four inches of dry clean chaff in the bottom of each coop.

You still have three days to train them in and this is the best fun of all. Take them up gently, speak kindly to them and stroke their feathers softly with your hands until they like it and lift their heads in approval. You see the judge may wish to take them up, and if they pose well then it is a big point in their favor. While training feed them grain in the coop and place water just outside where they can reach it.

Now comes the day for taking them or sending them to the fair. Put plenty of grain in the coop to last them until they are fed again, but no water. Instead, put some vegetables or apples in the coop which will take the place of water very well.

If you have really good chickens and follow the above simple directions you will be sure to make a very creditable showing whether you take a prize or not.

RENOVATION OF WORN-OUT SOILS

W. J. Spillman in U. S. Bulletin

Eighth Year—October

There is a vast difference in the natural fertility of soils. Some do not produce well from the start unless special attention is given to making them productive; others produce large crops for a short time and then rapidly diminish in fertility; while others, known as strong soils, remain productive for many years without attention to their fertility. But even the strongest soils will wear out in time unless they are intelligently managed.

Nature of the Soil

In order to understand the methods necessary for restoring worn-out soils, let us consider what occurs in a fertile soil that is growing a large crop. Imagine a cubic inch of ordinary field soil magnified into a cubic mile. It

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would then present very much the appearance of a mass of rocks varying from the size of a pea to masses several feet in diameter. Scattered among these rock masses would be many pieces of decaying plant roots and other organic matter, resembling rotting logs in a mass of stones and gravel. The masses of organic matter would be found to contain large quantities of water, and to somewhat resemble wet sponges, while every mass of rock would have a layer of water covering its surface. The open spaces between the solid masses would be filled with air.

If a crop were growing on this soil, its roots would be found threading their way among the masses of rock and decaying roots, and pushing these aside by the pressure exerted by the growing root. From the surface of the growing root, near its tip, small hollow threads (the root hairs) extend into the open spaces and suck up the water covering the rock particles. The root hairs are not open at the end; they absorb the water thru their walls. The plant food is dissolved in this water, but is usually present in exceedingly small quantities. While the plant is growing a constant stream of water flows up thru it and evaporates at its leaves. For every pound of growth in dry matter made by the plant, from 300 to 800 pounds of water flow up thru it.

The plant food substances dissolved in the soil water may be divided into two classes according to their ultimate source.

In addition to the nine elements already mentioned, the growing plant requires four other elements, as follows: Hydrogen, which it secures from water (water is a compound of hydrogen and oxygen); oxygen, which it secures partly from water and partly from the air; carbon, which is secured from carbonic-acid gas in the air; and nitrogen.

Nitrogen is in many respects the most important of all the plant-food elements. It is not found in appreciable quantities in the rock particles of the soil. Ordinary plants depend for their nitrogen entirely on decaying organic matter. As decay proceeds nitrates are formed from the nitrogen contained in organic matter. The nitrates are exceedingly soluble, and unless soon made use of by growing crops they are washed out of the soil. Nitrogen is therefore usually the first element to become exhausted in the soil.

Fortunately, there are certain species of bacteria that can use atmospheric nitrogen, of which there is an inexhaustible supply. One family of plants—the legumes—has learned to exchange work with these bacteria, and these plants are thus easily supplied with an abundance of nitrogen in a form they can use.

The cultivation of leguminous crops is one of the most important and economical means of maintaining a supply of nitrogenous plant food in the soil. Nitrates may, of course, be supplied in commercial fertilizers; but fertilizers containing nitrogen are very expensive, and it usually pays better to supply nitrogen by growing legumes or by the application of stable manure, which is rich in nitrogen when properly handled.

Soil Moisture and Humus

In order to produce a ton of dry hay on an acre of land it is necessary that the growing grass pump up from that acre approximately 500 tons of water. In order to supply this enormous quantity of water, the soil must not only be in condition to absorb and hold water well, but it must be porous enough to permit water to flow freely from soil grain to soil grain. The presence of large quantities of decaying organic matter (humus) adds enormously to the water-holding capacity of the soil. One ton of humus will absorb 2 tons of water and give it up readily to growing crops. Not only that, but the shrinkage of the particles of decaying organic matter and the consequent loosening of soil grains keep the soil open and proous.

Soil Air

A proper circulation of air in the soil is just as important as any other factor of plant growth. Nearly half of the volume of ordinary soils is occupied by air spaces. The air spaces in the soil wind in and out between the soil particles, just as they do in a pile of larger stones or rocks. If the layer of water on the surface of the soil grains becomes so thick as to stop the air passages here and there the soil is then too wet for most crops and needs drainage. Plants have no special breathing organs, the oxygen required in their breathing finding entrance all over the surface of the plant. Plant roots must therefore be supplied with air, and hence the soil must be porous enough to permit of free circulation of air. A good supply of humus and proper tillage will accomplish this result in clay soils. Sandy soils are usually too porous, needing humus to help them retain water.

Substances Thrown Off in the Soil By Growing Plants

Considerable evidence has been accumulated during recent years to show that the cause of the failure of some soils to produce satisfactory crops may be ascribed to unfavorable conditions produced in the soil by the plants themselves. It is thought that during the growth of the plant certain unknown organic substances are given off which, when they accumulate in the soil to any extent, are harmful to the further growth of plants of the kind that produced them. It is possible that some of the benefits known to arise from systematic crop rotation may be explained on this basis. These harmful substances seem to be disposed of rapidly by certain soils, usually those in which organic matter is readily converted into humus. Other soils, usually marked by a lack of the brown carbonized organic matter, do not seem to possess this property of removing harmful plant products to such a degree. This idea is in accord with the common experience that dark-colored soils, well filled with organic matter, are usually very productive.

(Continued in October Number)

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Seasonable Receipts

The down of the cat-tail makes splendid filling for sofa pillows. Gather them before they are quite ripe and spread them out on a loft floor until thoroly dry. Now is the time to gather them.

Tomato soup will sometimes curdle in spite of the soda. An exchange says that if a little soda is mixed with a teaspoon of corn starch and added to the milk or cream just before pouring in the tomato the soup will not curdle.

Kohl Rabi

After having washed, and sliced or quartered the vegetable, let it soak one hour in cold water. Put on to boil in cold water, bring to a boil quickly, skim and let it simmer until tender. Drain and serve with melted butter, vinegar and black pepper or with a little milk and butter as you would new potatoes. Too rapid boiling will make it tough and woody.

How to Cook Vegetables

Never over-salt any vegetable. Too much salt toughens the fibers, destroys the delicate flavors and helps extract the mineral contents which are valuable.

Boil most vegetables in as little water as is safe to prevent burning. The cabbage family is an exception to this rule. This includes cauliflower, Brussels sprouts and kale. These should be put on in plenty of very slightly salted cold water to allow them to swim freely. Bring quickly to the boiling point, then cook rather slowly till tender. Do not cover as this condenses the strong-smelling oil which is revaporized on the lid and then spreads thru the house.

If vegetables are at all wilted, freshen in cold water. If they do not become crisp in an hour or so they are not worth cooking. Do not let them lie in water over night as vegetable fiber once wilted sours very quickly. If it is necessary to leave them, shake them out of the cold water and spread out loosely in a cool place.

Summer Squash

Wash, pare and cut in small pieces, removing the seeds if they are full grown. Boil slowly in a little unsalted water; then drain in a colander and mash smooth. For a pint of pulp allow a large tablespoon of butter, half a cup of cream or milk, half a teaspoon of salt and a little pepper. When these are heated together add the squash and stir until thoroly blended. A grain of red pepper adds to the flavor.

Meatless Tomato Soup

One quart each tomatoes and water; stew till soft; add one teaspoonful soda; allow to effervesce. Cook one onion, sliced in two tablespoonfuls butter till soft; but not brown; add to soup and boil well; strain. Add one quart boiling milk, salt, butter and pepper to taste. With a little rolled cracker boil a few minutes and serve.

Roast Veal Liver

Salt and pepper one whole liver; cover top with pieces of bacon fastened on with toothpicks. Roast one hour.

Goose or Duck Dressing

Six good-sized potatoes cooked and mashed, one-half as much bread crumbs soaked, season with salt and pepper, sage, onions and a piece of butter.

Bread Dressing for Chicken or Meats

For each cupful bread crumbs use one good teaspoonful melted butter, one small teaspoonful salt, a little pepper and one-quarter teaspoonful powdered sage. Add enough water to make moist.

Beef Loaf with Tomato Sauce

Put three pounds of beef and a very little salt pork thru the meat chopper; add salt, pepper, three eggs and three soda crackers rolled fine. Form into a loaf and place in roasting pan, pouring over it three cupfuls of stewed tomatoes that have been put thru a ricer. Baste while baking, and when done thicken sauce for gravy.

Relish Stew

Stew two pounds beef in frying pan with one-half dozen sliced tomatoes and three sliced onions.

French Mustard Dressing

Slice three large onions into one quart of vinegar; let stand three days. Strain into double-boiler; when hot add two tablespoonfuls sugar, one tablespoonful salt, one teaspoonful black pepper; thicken with two tablespoonfuls mustard and one tablespoonful flour. Cook ten minutes and bottle.

Apple Dumpling

Pare and core medium-sized, juicy, tart apples. Bake dough same as for soda or baking powder biscuit, cut into thick biscuits, roll out, and wrap each piece around an apple, which must first be liberally sugared and dusted with powdered cinnamon or nutmeg. Place in a steamer over kettle of boiling water, and cook until apples are soft. These dumplings, if preferred, may be baked until a deep golden brown, in which case, apples should be sliced. Serve with sweetened cream or hard sauce, the latter, if used, flavored with cinnamon or nutmeg.

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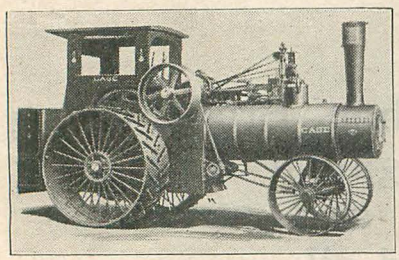
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9 OUT OF 10

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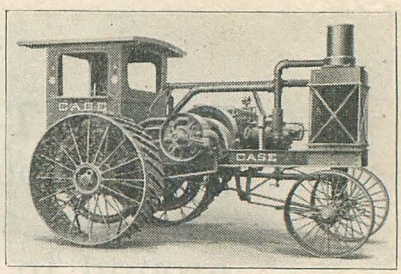
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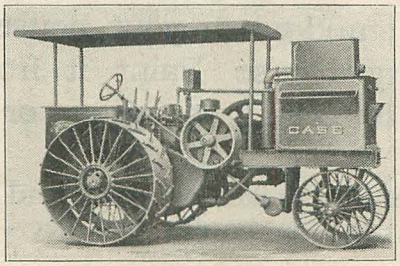
STEAM

The Case 110 H. P. Steam Engine not only won the Gold Medal in its class, but established a new world's record of 2.65 pounds of coal per brake horsepower hour, thereby breaking its own world's record by 11 per cent. This engine has been entered in Winnipeg four times, and four times it has won the Gold Medals and four times it has been awarded the Sweepstakes honors.

The Case 80 H. P. Steam—three times entered—three times Gold Medal winner. No other engine has ever approached the record of this one—except our own 110. By again winning the Gold Medal in its class this year, this engine substantiates our claims that when Case engines compete, it is only against their own previous record. This engine holds the record for the lowest coal consumption per draw bar horsepower hour, the lowest water consumption per draw bar horsepower hour, and the lowest water consumption per brake horsepower hour—excepting the Case 110.

The 40 H. P. Steam. In winning the Gold Medal in this year's Contest, its nearest competitor was an engine weighing 65 per cent or over six and one-quarter tons more, and costing $1040 more than this tractor. In 1910 and '11 this Case engine received diplomas of award, because no other manufacturer dared pit his engine against the Case "40." In fact, there never has been an engine entered against the Case 40 which properly belonged in this class—a class intended to include only engines under 60 brake horsepower.

These figures are eloquent testimony to our wisdom in continuing to improve our steam, as well as our internal combustion engines, while other manufacturers have forgotten their steam products in their frantic efforts to get upon the market a gas tractor that will equal Case



OIL

The Gold Medal winning score of the Case 60 H. P. Oil Tractor illustrates the value of those sterling qualities that have won international fame for Case Machinery. In scoring 79.15 points on design and construction, out of a possible hundred, this tractor proves that simplicity, accessibility and rigidity, combined with economy, go to make the perfect tractor—the one that will earn real dollars for its owner This tractor has always won a higher score for accessibility, protection of working parts, easy manipulation, than any other make in any internal combustion class entered at Winnipeg. Its Gold Medal is a just recognition of those features that have always characterized Case Machinery—Design and Construction.

PLOWS

Case won both Gold Medals and Sweepstakes Honors awarded to plows. Our tractor gang plows led their closest competitors in all the essentials of good plowing—those qualities which a practical plowman demands. Our 10-bottom, 14-inch tractor gang plow won the Gold Medal in the large class, and the 6-bottom, 14-inch automatic—lift tractor gang plow won the Gold Medal in the small class. This last named outclassed its nearest competitor, a much heralded "—lift" plow, winner of last year's Gold medal, when Case did not compete.

GAS

The score of the Case 40 Gas and Oil Tractor, burning gasoline and kerosene, won the Gold Medal in each class. When reduced to its simplest terms, its score showed that with gasoline it cost our closest competitor 42 per cent more to plow an acre than Case, and on kerosene 32 per cent more. Further, that on gasoline our average Draw Bar Pull was 20 per cent more than our competitor, and we produced 41 per cent more Draw Bar Horsepower, with the same amount of fuel. On kerosene our average Draw Bar Pull was 49 per cent more than that of our competitor, and our "40" produced 65 per cent more Draw Bar Horsepower with the same amount of fuel than our competitor.

The lower your operating costs, the higher your profits. This is the final standard of value, and on this score Case 40 is without a rival.

The Case 25 won the Gold Medal in its class, scoring 36 per cent more points than its competitor. We have often stated that we do no experimenting at the expense of our customers. This is again proved by the notable fact that this 25 H. P. Tractor was the very first of its type publicly to be exhibited. The fact that it won the Gold Medal, surprised no one, familiar with Case design and construction. The accessibility and protection of the working parts, its compactness, thoroness and simplicity in construction were the envy of all manufacturers.

The Catalog Tells the Details

The winning of Gold Medals by Case products in this Winnipeg Contest is positive proof to the purchaser of farm power that in this field Case has no rivals. The Winnipeg Motor Contest is international, under the supervision of the Canadian government and is the only scientific, unbiased official test of Tractors and Tractor Gang Plows in America. We shall be very glad to furnish information regarding the details of construction of our tractors and tractor gang plows. Your request for a catalog or any other information will receive immediate acknowledgment.

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